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Dear Sir:

A vast array of apparatus and industrial products in 162 nuclear exhibits, were seen by the nearly 19,000 visitors to the Atomic Exposition which closed in Cleveland after its successful Dec. 10-16 showing. The Exposition had been held in conjunction with the Nuclear Congress, where a record breaking (for the U.S.) number of papers exclusively on nuclear energy subjects were presented to the 2,834 registrants to the Congress. The enthusiasm of the exhibitors with results achieved have prompted plans by the sponsors (26 technical, scientific and trade groups in the U.S.) for another Atomic Exposition and Nuclear Congress in Philadelphia, October, 1956, according to John R. Dunning, of Columbia University, who was general chairman of the Congress.

Engineering courses to prepare graduates for nuclear work are being offered at the Technische Hochschule, at Aachen, Germany, in the Winter term, which started last month. According to Prof. Wilhelm Fuchs, director of the physics institute there, the necessary theoretical studies had been available, while the professors and staff at Aachen obtained the practical acquaintance with the working of nuclear reactors and associated equipment abroad which they needed to start teaching..... A proposal for a Nordic institute for nuclear research has been made by representatives of the governments of Norway, Sweden, Denmark, and Iceland. Suggested location is Copenhagen, for close connection with the Institute for Theoretical Physics which is located there. It is expected to seriously discuss the project when the Nordic Council meets in Copenhagen next month. (Other INTERNATIONAL news, p. 4 this LETTER.)

The first lump-sum contract for the fabrication of reactor fuel elements by a private firm has been awarded the Babcock & Wilcox Co., New York, whose bid of $279.28 each, for 325 fuel assemblies, was the lowest of 12 firms submitting proposals. Negotiations were handled by the USAEC, although Babcock will do the work under contract to Phillips Petroleum Co., operator of the Materials Testing Reactor for the USAEC at the national reactor testing station, Idaho. Babcock's bid was $105.72 less than the next lowest bid of $385 per assembly. The company will fabricate the assemblies at a new plant it is building at Lynchburg, Va., and expects to start delivery in July, 1956. The highly enriched uranium required for the job will be provided by the USAEC. (Other CONTRACT news, p. 2 this LETTER.)

New uranium finds continue to show results in the U.S., with one of the latest in an area 20 miles north of Salt Lake City in a brand new area far from other producers. Ore is now being dug from a mine in this area, with the producers optimistic concerning future prospects. New production is also getting underway in the Grants area of New Mexico, and the first load of ore was shipped two weeks ago from the recently opened Pumpkin Buttes area in Wyoming. New finds abroad include the discovery in Central Sweden, near Gothenburg, of what is said to be the world's largest uranium field; reserves have been estimated at 1 million tons.

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ATOMIC ENERGY CONTRACT NEWS...

BERYLLIUM METAL TO BE BOUGHT FROM PRIVATE PRODUCER:- In January, 1956, the USAEC will ask for proposals from private U.S. firms to supply it with 100,000-lbs. annually for five years of reactor grade beryllium metal. If the USAEC accepts a proposal, the present Government-owned beryllium plant at Luckey, Ohio, now operated under a USAEC contract by Brush Beryllium Co., will be put into a standby status. Deliveries are required by the earliest practicable date by which a supplier can reach the proposed production level allowing for orderly and economical design, construction, and plant shake-down periods. A prospectus describing this proposal is available from the USAEC's Locklands Area Office, P. O. Box 23, Lockland Branch, Cincinnati 15, Ohio. (Largest U.S. beryllium producer is The Beryllium Corp., which is now completing a $2 million expansion program at Reading, Pa. Its gross sales are estimated at $10 million for 1955. Other U.S. producer is Brush Beryllium, now operating the Luckey, O., plant and an early supplier of the metal to the USAEC.)

FIVE U.S. FIRMS HAVE NAVY CONTRACTS FOR AIRCRAFT NUCLEAR PROPULSION WORK, AGENCY SAYS:- The various problems of aircraft nuclear propulsion (shielding, energy transmission systems, waste product handling, etc.) are being handled by five U.S firms under Navy contracts, that service said in Washington last fortnight. Companies are: General Electric Co. (aircraft gas turbine div.), Curtis-Wright Corp.; Garrett Corp. (AiResearch div.); Nuclear Development Corp. of America; and General Motors Corp. (Allison div.). Some of these firms also have Air Force contracts for aircraft nuclear propulsion projects, while Glenn L. Martin Co., and General Dynamics Corp. (Convair div.) have contracts to develop an air frame for a nuclear craft. Meanwhile, General Motors officials, attempting to secure additional people who are qualified for the nuclear work, have talked with Internuclear, Inc., about a possible working contract. (Internuclear, Inc., is a consulting group in nuclear science, formed by people who recently left Monsanto Chemical Co.)

BIDS ASKED; CONTRACTS LET:- Low bidder at $68,965 on a contract to furnish a 7,500 KVA transformer for the national reactor testing station, Idaho Falls, Idaho, was Legnano Electric Corp., N.Y. Next lowest was Westinghouse Electric with a $71,868 bid..... Plans and specifications for extending the rocket sled test track at Sandia Laboratory, Albuquerque, N.M., will be issued Jan. 10, 1956, and may be obtained from the USAEC's Santa Fe Operations Office, P.O. Box 5400, Albuquerque, N.M. The job is estimated to be in the $160,000 -- $180,000 range.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Control of Nuclear Reactors and Power Plants, by M. A. Schultz, Westinghouse Electric Corp. Control from the viewpoint of servo engineering. 326 pages. -- McGraw-Hill Book Co., New York 36. ($7.50)

Studies on the Protective Action of Sulfhydryl Compounds Against X-Irradiation, by W. Parr, et al, Medical Dep't., U.S. Army. Report no. PB-117862. (Microfilm, $2.00; Photostat, $2.75)..... Effect of Nuclear Radiation on the Structure of Zirconium, by H.D. Holland and D. Gottfried, Princeton Univ., Report no. PB-118328. (Microfilm, $3.30; Photostat, $7.80). --Library of Congress, Washington 25, D.C.

Boundary Layer Radioactive Tracer Technique, Part I, Instrumentation. Measurement of velocity profiles in flowing fluids. U.S. Air Force-sponsored research. Report no. PB-111677. ($2.75). --Office of Technical Services, Wash. 25, D.C.

Proceedings of the Pre-Geneva Conference on Peaceful Uses of Atomic Energy Held by the Academy of Sciences, USSR, July 1-5, 1955. Comprises 87 reports; does not duplicate reports by Soviet scientists to the Geneva conference. English translation; four volumes. --Consultants Bureau, 152 W. 42nd St., New York 36. ($350.00)

Uranium Deposits in the Eureka Gulch Area, Central City District, Gilpin County, Colorado. Preliminary account of the geology and economic aspects of the uranium deposits there. 31 pages. (50¢)..... Preprints from Minerals Yearbook, 1953. (Actually chapters, issued in advance of the main volume.) Beryllium, 11 pages, 10¢; lithium, 6 pages, 5¢; titanium, 23 pages, 15¢; zirconium and hafnium, 12 pages, 10¢. --Superintendent of Documents, Wash. 25, D. C.

Distribution of Gamma-Rays and Neutrons in the Control Face of British BEPO Nuclear Reactor, by J. R. Harrison, et al. 17 pages. Report no. PB-118771. 50¢. British Information Services, 30 Rockefeller Plaza, New York 20.

ATOMIC ENERGY FINANCIAL NEWS...

FURTHER DIVERSIFICATION BY URANIUM MINING FIRM:- Colonial Nuclear Industries, Inc., Grand Junction, Colo., announced last fortnight it had purchased Uco Ventures, Inc., a producing uranium mine, which had been privately financed. (According to Robert I. Ludwig, Colonial Nuclear president, Uco sold the firm its 100% interest in the five Ford claims on Tenderfoat Mesa from which more than $40,000 in high grade ore has been shipped since last Spring.) Organized in 1954 as Colonial Uranium, a series of acquisitions of firms in other fields prompted its recent change of name to Colonial Nuclear Industries, Inc. The capitalization was also recently increased from three million to fifteen million shares. Holdings of Colonial Nuclear now bring to eleven the number of companies controlled by the firm. Included in Colonial Nuclear's holdings is the Thorium Corp. of America, with 57 thorium claims in Colorado and contracts totalling $1 million to supply thorium concentrates to Lindsay Chemical Co., N. Chicago, largest thorium processor in the U.S. Other holdings include a radiation detection instrument firm; oil wells; silver, gold and lead producing properties; nickel acreage in Cuba; etc.

CHIEF EXECUTIVE NAMED TO NEW FIRM IN NUCLEAR FIELD:- With the election of Sam Norris as president of Nuclear Corp. of America, that firm now has its first operating executive. Mr. Norris is experienced in merchandising and management phases in the electronic field; he was formerly president and director of Amperex Electronic Corp., Hicksville, N.Y., a firm which he founded and which was sold to N.V. Phillips, The Netherlands. Amperex produces a variety of transmitting and receiving tubes, including a substantial quantity of Geiger tubes. Nuclear Corp. of America, formed from the corporate shell of Reo Holding, and listed on the American Stock Exchange, is controlled by Mr. Louis Kurtin, chairman of Nuclear Corp., and chairman of TelAutograph Corp.

INTEREST IN NUCLEAR DEVELOPMENTS REVEALED BY BRITISH FIRM:- Explaining the intention of Tube Investments, Inc., to raise the company's capital, Sir. Ivan A. R. Stedeford, chairman of this English company, pointed out in his annual review recently released to stockholders that the firm had expanded its research and had established additional laboratories at Hinxton Hall, Cambridge, where a radioactive research group under Dr. A. Charlesby, formerly of the Atomic Energy Research Establishment, Harwell, was working with an electron accelerator. Sir Ivan pointed out that Tube Investments was now supplying essential components for nuclear plants in Britain. He noted that they had always specialized in making tubes to withstand high temperatures and pressures, as well as the increasingly corrosive conditions of modern manufacturing processes.

CHANGES IN STOCKHOLDINGS MADE BY FIRMS WITH NUCLEAR INTERESTS:- Recently reported to the Securities and Exchange Commission were a number of changes in stockholdings of officers of the following firms: Lindsay Chemical Co. (Midwest Exchange), with Charles R. Lindsay, III, president and beneficial owner of more than 10% of the 7% cumulative preferred stock, selling 1,000 common shares, decreasing direct holdings to 10,000..... Preston East Dome Mines, Ltd. (American Exchange), with C.F.W. Burns, director, selling 500 common shares, reducing direct holdings to 500. Another transaction was that of Joseph H. Hirshhorn, director, who bought 10,000 capital shares and sold 9,300, making direct holdings 18,950..... El-Tronics, Inc. (American Exchange), with A. J. Ostheimer, 3rd, director, making a gift of 2,400 common shares and selling 2,500 shares, reducing direct ownership to 35,100.

DEBENTURES ISSUED BY NUCLEAR PRODUCTS FIRM:- The $1.5 million in 5% convertible debentures, due 1970, which are being issued by Tracerlab, Inc., Boston nuclear products manufacturer (this LETTER, Nov. 29, 1955, p. 1), are now being offered by Lee, Higginson Corp., 40 Wall St., N.Y.C.; Harriman, Ripley & Co., Inc., 63 Wall St., NYC; and Estabrook & Co., 40 Wall St., NYC. Tracerlab will use part of the proceeds to liquidate the bank debt of Keleket X-ray Corp., its subsidiary, and the balance for general corporate purposes.

NEW FIRM ACQUIRED BY INSTRUMENT CONCERN:- General Precision Equipment Corp., which has twenty subsidiary instrument firms producing precision products and controls, including specialty products used in the nuclear field, has now acquired a majority of the outstanding stock of the Shand & Jurs Co., Berkeley, Calif.

INTERNATIONAL ATOMIC ENERGY NEWS...

GERMANY:- A Federal Atomic Commission has now been established by the West German Cabinet and will be headed by F. J. Strauss, Federal Minister for Atomic Affairs. To consist of twenty-five nuclear physicists, industrialists and economists, objectives will be to promote research in, and development of atomic energy. Germany is forbidden to produce nuclear weapons under terms of the occupying powers.

INDIA:- An agreement providing for "close cooperation and mutual assistance" in the development of peaceful uses of nuclear energy has been signed by the Governments of India and Great Britain. Announcing the agreement last week in New Delhi, the Indian Department of Atomic Energy said Britain would supply India with enriched uranium fuel elements for the nuclear reactor now under construction at Trombay, near Bombay. Technical assistance will also be given India by British nuclear energy research people.

GREAT BRITAIN:- The General Electric Co. (Great Britain) - Simon Carves Industrial Atomic Energy Group have made arrangements under which Motherwell Bridge & Engineering Co., Ltd., will be associated with them in the construction of nuclear power plants. Motherwell is the sole UK licensee for the Hortonspheres developed by the Chicago Bridge & Iron Co. (U.S.), and is at present constructing the 140-ft. diameter sphere for the UK Atomic Energy Authority's experimental fast reactor at Dounreay, Caithness, Scotland. (Motherwell's works cover 35 acres and have a shop floor area of 410,000 feet. With the exception of shipbuilders, it is the largest buyer of steel plates in Britain.)

RAW MATERIALS...prospecting, mining & marketing...

UNITED STATES:- Washington, D.C. - Attempts are being made by uranium mining companies (through congressmen, etc.) to persuade the USAEC to state its policy concerning uranium ore buying after 1962. Since under present regulations there are guaranteed prices and a market (the USAEC) only until 1962, long range plans for expansion, etc., require definite knowledge of the future which is now wholly lacking.

Trace Elements Corp., Grand Junction, Colo., which received a USAEC contract last August to construct a mill and process uranium ore at Maybell, Colo., has now submitted a proposal to the Commission asking for a "substantially larger" intake of ore at the mill. The proposal follows Trace Elements' operation of a pilot plant at Maybell for about three months, ending in November. (The Maybell mill will be the first uranium processing plant in northwest Colorado-southwest Wyoming, and will take ore from properties owned and controlled by Trace Elements as well as from other producers in the area.)

Leases of USAEC-controlled lands to work uranium deposits on them will be awarded, in the future, on the basis of competitive bids, rather than by the previous system of selecting lessees on the basis of qualifications which included mining experience and financial status, a USAEC official said in Washington last week. The selection system had been in effect since 1949; no new leases have been issued since the end of 1953. The decision followed public hearings by the USAEC at Grand Junction, Colo., last March.

CANADA:- At the Blind River property of Stanleigh Uranium Mining Co. drilling has shown two "interesting" bands of uranium bearing conglomerate. One intersection showed 4.4-ft., averaging 2.72-lbs. of uranium oxide per ton at a depth of 3,494-ft. Another showed 10.6-ft., averaging 2.6-lbs. per ton., at a depth of 3,521-ft. The property is situated along the north boundary of Lake Nordic Uranium Mines and Milliken Lake Uranium Mines, both north of Algom Uranium's Nordic ore zone.

At Can-Met Explorations Blind River property, contracts have been let for the sinking of two shafts to go to a depth of 2,200-ft., one shaft to serve as the production opening and the other as the service opening. (Can-Met has no surface outcropping of favorable conglomerate.) Recent diamond drilling at the property had given cores assaying ore grade: from 2,115-2,120-ft., assay showed 0.094% uranium oxide, and from 2,125-2,135-ft., assay was 0.096% uranium oxide.

An underground program and continued surface drilling program has been authorized by directors of Greyhawk Uranium Mines, to meet requirements for a premium price contract from the Canadian Government buying agency, Eldorado Mining & Refining. It is the hope of management to complete the program by Mar. 31, 1956.

ATOMIC ENERGY PATENT DIGEST...licenses available & new grants...

NEW PATENT GRANTS:- Method and apparatus for well logging. A well bore logging tool with means for correlating intensity of radioactivity with the depth of the tool in a well bore as a measurement of changes in the cross sectional area of the well bore. U. S. Pat. No. 2,725,486 issued Nov. 29, 1955; assigned to California Research Corp., San Francisco, Cal. (Inventor: John E. Walstrom.)

Method of locating a particular material in a mass of associated material. Comprises (in part) incorporating beryllium nuclei with the particular material, irradiating the mass of material with gamma rays, and converting the photoneutrons received from the irradiated mass of material to a sensible indication of the presence of the particular material. U. S. Pat. No. 2,726,338 issued Dec. 6, 1955; assigned to Schlumberger Well Surveying Corp., Houston, Tex. (Inventor: Clark Goodman.)

NEW TRADE-MARK GRANTS:- Trade-mark "Isotope", and device, will be issued Jan. 6, 1956, to Isotope Products, Ltd., Oakville, Ont., under SN 644,178 for use on apparatus for detecting radiation and those using gamma and/or beta radiation for measurement of liquid level in tanks, wall thickness of tanks, etc.

LICENSES AVAILABLE:- Royalty free (but non-exclusive) licenses for 41 U.S Government owned patents, developed during USAEC-sponsored research, are now available from the USAEC's Patent Branch, 1901 Constitution Ave., Wash. 25, D.C. This new group (which brings the total now so available to 845) includes: (1) Laboratory hood, No. 2,715,359. (2) Ion source for calutrons, No. 2,715,682. (3) Ion source for calutron, No. 2,715,683. (4) Ion producing apparatus, No. 2,715,692. (5) Deep collimating slot, No. 2,715,693. (6) Apparatus, No. 2,715,694. (7) Ion producing mechanism, No. 2,715,695. (8) Preparing zirconium iodide from the carbonitride. (9) Applying adherent polyethylene to structural materials, such as concrete, No. 2,716,075. (10) Electrical switch for radiation dosimeter, No. 2,716,168. (11) Square wave pulse generator, No. 2,716,194. (12) Source of ions for cyclotron, No. 2,716,197. (13) Thyrotron trigger circuit for discharging a capacitor, No. 2,716,211. (14) Electrical indicator for detecting expansion of confined bodies, No. 2,716,229. (15) Device for counting alpha and beta particles, No. 2,716,523. (16) Supporting apparatus for pipe cutting devices, No. 2,716,530. (17) Radiation shield for nuclear reactor use, No. 2,716,705. (18) Electromagnetic liquid metal pump, No. 2,716,943. (19) Producing dipotassium uranous fluoride, No. 2,717,234. (20) Pulse limiter and shaper, No. 2,717,316. (21) Precision regulated power supply, No. 2,717,353. (22) Separating fission products from organic solvents, No. 2,717,696. (23) Producing purified metals such as zirconium, No. 2,717,915. (24) Electric discharge device for use as calutron ion source, No. 2,717,962. (25) Arc discharge device, No. 2,717,963. (26) Sulfur crystal counter, No. 2,717,964. (27) Valve device for isotope separation, No. 2,718,235. (28) Remote control apparatus for transferring fluids, No. 2,718,459. (29) Charge receptacles for use in ion source units, No. 2,719,233. (30) Process and apparatus for protecting uranium hexachloride from deterioration and contamination, No. 2,719,777. (31) Neutronic reactor radiation indicator which is simple to construct, easy to operate, and is accurate and reliable, No. 2,719,823. (32) Relatively simplified method for synthesizing glycosyl derivatives of heterocyclic compounds. (33) Improvements in a calutron, No. 2,719,924. (34) Electric discharge device, No. 2,719,925. (35) Device to continuously and automatically cut selected standard lengths of wire, ribbon, tape, rod, or the like, No. 2,719,941. (36) Radiation shield blocks and building walls constructed from them, No. 2,720,105. (37) Scintillation-type ion detector for detecting moving charged particles in the presence of an intense magnetic field, No. 2,720,593. (38) Power supply of a unidirectional voltage having a substantially zero ripple component in the output voltage, No. 2,720,622. (39) Improvements in a calutron, No. 2,721,272. (40) & (41) Beam current integrators for a calutron, No. 2,721,699 and 2,721,700.

Sincerely,

The Staff,
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